

INTRODUCTION

The North Carolina State Parks System provides an important resource to both visitors and residents of the state in the form of a myriad of recreational and environmental educational opportunities year-round. In addition to these benefits, state park units contribute to the economies of local communities and to the state. Visitors to North Carolina spend money on items like groceries, gasoline, and recreational equipment. Such expenditures are known as *direct expenditures*. This spending percolates through a community in the form of *indirect* and *induced* expenditures. Indirect expenditures reflect the “ripple effect” of the direct expenditures, or the money spent to support those purchases. *Induced* expenditures are those made by the employees of those businesses that spend their wages at other businesses.

This report presents the results of a yearlong investigation into the economic impacts of visitors to 15 North Carolina state parks. The state park system is composed of 34 parks, 4 recreation areas, and 17 natural areas. Due to the size of the system, a sample of 15 parks was selected (Table 1) to represent the state’s geographic diversity as well as the variety of activities and visitor experiences the state parks system offers (Figure 1). Weymouth Woods was subsequently excluded from the study due to a small sampling size.

Table 1. State Park Units Studied

Park Name	Type of Unit	County(s) where park is located	District
Gorges	Park	Transylvania	West
Mount Mitchell	Park	Yancey	West
Stone Mountain	Park	Wilkes	West
Eno River	Park	Durham, Orange	North
Hanging Rock	Park	Stokes	North
Kerr Lake	Recreation Area	Granville, Vance, Warren	North
Pilot Mountain	Park	Surry	North
Fort Fisher	Recreation Area	New Hanover	South
Jordan Lake	Recreation Area	Wake, Chatham, Durham, Orange	South
Morrow Mountain	Park	Stanley	South
Weymouth Woods	Natural Area	Moore	South
Fort Macon	Park	Carteret	East
Hammocks Beach	Park	Onslow	East
Jockeys Ridge	Park	Dare	East
Merchants Millpond	Park	Gates	East

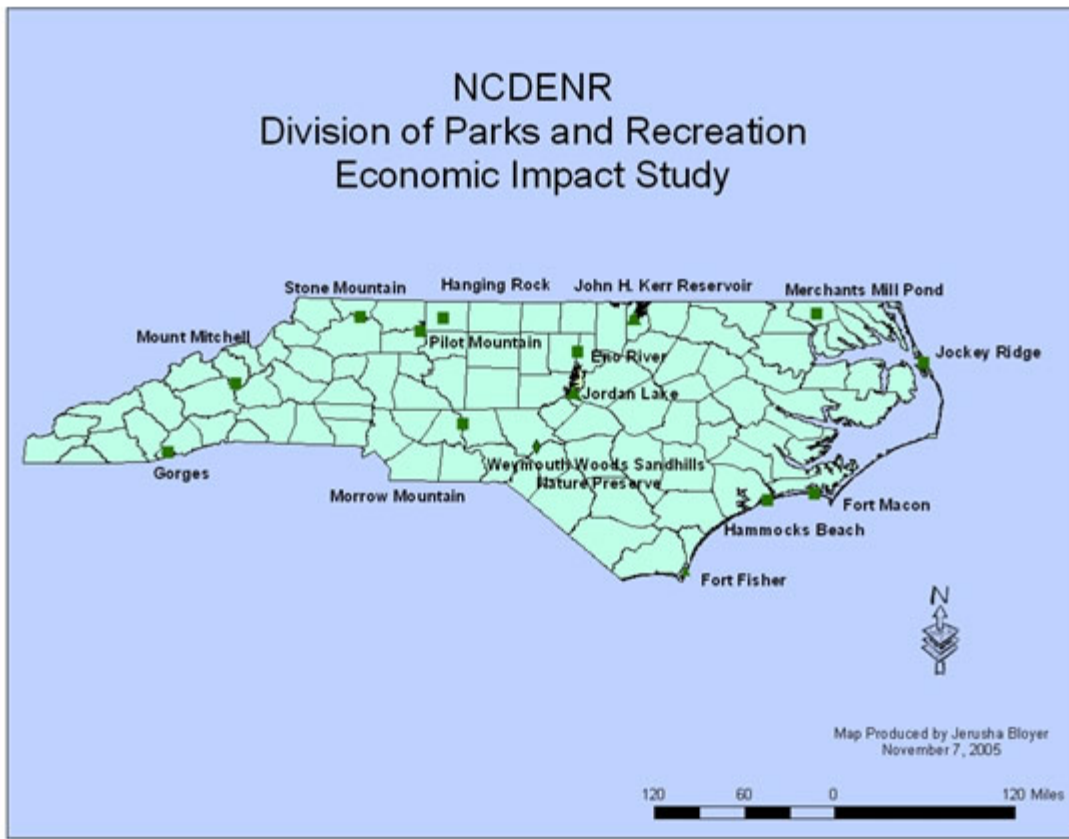


Figure 1. Economic Impact Analysis Study Parks

This report is organized as follows:

- Economic impact analysis: A brief review of economic impact analyses is given followed by the specific goals of this study.
- Research design & data analysis: A discussion of the research design employed, including the specifics of data analysis, is presented using Hanging Rock State Park as an example.
- Results: A discussion of overall results is presented followed by individual park summaries of the direct expenditures of the primary purpose, non-local visitors and the economic impact of those expenditures to the local communities.

ECONOMIC IMPACT ANALYSES

Review

Natural resource-based attractions, particularly public parks, recreation areas, and natural areas, are often mentioned as important contributors to local economies. Without adequate documentation of this contribution, local officials and others might not appreciate the positive economic impact of these public parks on North Carolina and its local communities. Public park and recreation facilities often constitute a majority of the tourist attractions in a

particular area and therefore much of the economic impact of travel in particular areas can be associated with them (Crompton, 1999).

A myriad of analyses have been designed to estimate the value of a resource. According to Crompton (1999), one of the most common forms of analysis used by providers of public park and recreation facilities are fiscal analyses or financial reports. While these reports provide elected officials and decision-makers with an accounting of the revenues generated and costs incurred by the facilities and programs, they do not provide an accurate picture of the benefits provided to those who utilize the resource and those whose taxes provide the resources. These reports also lack the information law makers and others need to understand the overall economic contribution such facilities make to a community by attracting visitors from outside the region who spend their money and stimulate or maintain the local economy.

Natural resource-based attractions also provide important environmental and outdoor recreation benefits for both visitors and residents. Such benefits are termed non-market benefits, or benefits that cannot be bought or sold. One way to place a monetary value on these resources is to ask an individual how much they would be willing to pay for them. This is known as a contingent valuation and can help decision-makers understand how resources are valued. They can use this information to create policies that will create the highest net benefit to society (Stynes, 1997). Contingent valuation methods, however, do not take into account the actual impacts of visitor expenditures on economies of local communities. (Jackson & Propst, 1991). In other words, they do not show up on a financial report.

An economic impact analysis that documents and analyzes the expenditures made by visitors to a natural resource-based attraction is important in presenting decision-makers with an explicit demonstration of the direct, indirect, and induced impacts of that attraction on the community. Direct, indirect, and induced economic impacts describe how money spent by a tourist circulates through an economy (Figure 2).

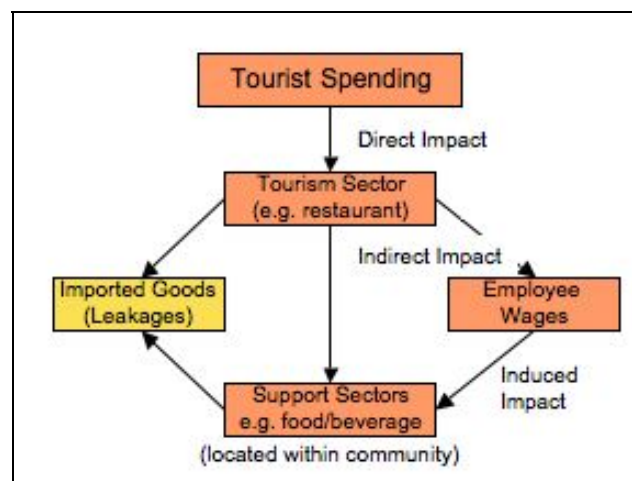


Figure 2. Economic Impact of Tourist Spending

When a visitor spends money on, for example, a hot dog from a hot dog stand (direct impact), that money goes to pay for hot dogs, buns, condiments, supplies, and employee's wages. These are the indirect impacts of the tourist's original hot dog purchase. In turn, the

employee will spend their wages on groceries, gasoline, and other services. These are the induced impacts of the original hot dog purchase. If the supplies needed to run the business are located outside of the community, the hot dog stand operator must import them. The money that leaves the community then “leaks” out of the local economy.

Purpose of Study

The purpose of this study is to accurately estimate the economic impact of primary purpose, non-local visitors to the selected parks and recreation areas. Visitors to state parks contribute to these local economies when they spend money on food, lodging, services, recreational equipment, etc. The level of economic impact depends on a number of factors. If a community contains a number of different services (e.g. restaurants, lodging, and service stations) available for both residents and visitors, then the economic impact will be greater than if a community has few services available. The economic impact will be even greater when those businesses purchase supplies within that community (e.g., when a restaurant buys supplies from local growers). If a community has to import supplies from outside the area, the impact of visitor dollars will be lessened. Using the impact modeling software, IMPLAN, this study provides an understanding of how visitor spending filters through North Carolina communities. IMPLAN uses North Carolina specific data to adjust the economic impact of expenditures to reflect the economic factors in each individual study area.

DATA COLLECTION & ANALYSIS

Survey Procedures

Instrument Design

The survey instrument was adapted from an economic impact study conducted in the Texas State Park System by Walker, Lee and Crompton in 2005. The adapted survey included additional questions related to visitor activities in the park, reasons for visiting the park, and adjustments to the spending portion of the questionnaire in order to make it relevant to North Carolina state park visitors. A sample survey is included as Appendix A.

Survey respondents were asked to provide:

- Zip code
- Number of previous visits to the park in the past year
- Length of stay of their current visit in the area
- Number of people in the group for whom they were financially responsible
- If visiting the park was their primary purpose for their trip to the area
- If the park was not their primary purpose, did they extend their stay because of the park
- If visiting the park was not their primary reason for visiting the area, what was?

In addition, to account for expenditures in the region around the park, respondents were asked to report their spending in nine different categories: admission fees, camping fees, groceries, dining out, recreational equipment and supplies, retail shopping, transportation costs, lodging, and any other expenses. In order to prevent respondent over-estimation of

their expenditures in the area of the park being visited, visitors were asked to discriminate between the amount spent “in the area” (near the park), and “outside the area” (pre-trip, in route to the park).

Data Collection

From July 2005 to June 2006, a total of 2,148 individuals were interviewed on-site at the fourteen participating North Carolina state parks. Appendix E outlines the economic impact of visitors for each park. Research assistants visited parks between three and five times (including weekdays and weekends). They collected surveys for two days on each visit, with collection times broken into two five-hour periods for a total of ten hours-per-visit, and attempted to interview each visitor encountered during these periods. Research assistants encountered survey respondents by situating themselves in well-traveled areas of the park as designated by the respective park staff. To improve the accuracy of the data collected, outlying values have been removed because they do not correspond with “normal” expenditures for a typical park visit. For example, those individuals who purchased boats while visiting the Jockey’s Ridge State Park area were excluded from the study because this type of purchase does not represent typical spending behavior when visiting a state park. By collecting data in the parks on both weekends and weekdays, and splitting data collection up between morning and afternoon periods, an attempt has been made to collect the most representative sample possible. The results imply a substantial economic contribution attributable to the presence of state parks in the study counties.

Primary Purpose Visitors

According to Crompton (1999), Tomas and Crompton (2004), and Walker, Lee and Crompton (2005), those individuals who can be included in an analysis as contributors to economic *growth* in a community are limited to primary purpose, non-local visitors (i.e. those visitors in an area specifically to visit a state park unit). Local residents do not contribute new money to the local economy; therefore, they do not provide any new economic impact. Individuals who are in a region for purposes other than visiting the park but who visit the park while in the region (e.g. casual visitors) are also excluded because the money they spent was not specifically related to their visit to the park.

Data Analysis: Descriptive Statistics & Economic Impact

Descriptive Statistics

In order to separate responses from local visitors and non-local visitors, it was necessary to determine which zip codes reported by respondents fell within the boundaries of the county or counties in which the park is located. Using a geographic information system software program, ArcGIS 9.1, a map of zip code regions was overlaid with maps of North Carolina counties. Those surveys completed by individuals within the county or not crossing county lines were coded as “local residents” and retained in order to estimate the economic activity generated by that population. A procedure log for this analysis is provided as Appendix B.

Once the surveys were divided into local and non-local visitors, descriptive statistics were calculated using Microsoft Excel. After removing surveys from the analysis containing outlying values (such as those individuals who made large purchases during their visits), frequencies were calculated for characteristics of the visit, including number of prior visits to the park, number of nights spent in the area, number of days spent in the area, group size and primary versus local and casual use visit.

Data Analysis

Calculating Economic Impact. Microsoft Excel was used to derive the average size of respondents' groups, average length of stay in the area, and per person per day expenditures in the given expenditure categories. This step was necessary to prepare the data for analysis using a second program, IMPLAN. IMPLAN stands for IMpact Analysis for PLANning. It was developed by the U.S. Forest Service to model the economic impact of recreational spending. IMPLAN is capable of calculating the direct, indirect, and induced effects of an economic impact. **Direct effects** are those that occur directly to an industry from which an item was purchased, such as the revenues generated by a hot dog vendor when he makes a sale. **Indirect effects** occur as the result of the initial industry purchasing supplies from support industries, such as the vendor buying hot-dogs from a butcher. **Induced effects** reflect the changes on all the industries associated with the expenditures of new household income generated by the direct and indirect effects of the initial sale (such as when the butcher buys a boat or groceries). For the purposes of this study, we have programmed IMPLAN to calculate all three effects (see Figure 2, pg. 3). In short, IMPLAN allows an understanding of how money moves through an economy by initial and subsequent expenditures.

Economic impacts can be shown through four measures: direct expenditures, impact on sales, personal income, and employment. IMPLAN provides these figures as a result of the analysis of visitor spending.

Direct expenditures: Direct expenditures are the actual dollars spent by visitors in a community. After eliminating local and casual use visitors from the sample, direct expenditures made per person per day by primary purpose, non-local visitors were totaled and estimated by using the official visitation data provided by North Carolina state parks.

Impact on sales: This figure accounts for how the direct expenditures re-circulate in a community. Impact on sales is an expression of the direct, indirect, and induced effects. For this study, community is defined as the county or counties in which the park or recreation area is located.

Personal income: Personal income is a measure of the income that accrues to local residents per dollar of direct sales to non-local visitors. According to some economists, this and the employment measure (described below) are the most valuable measures of economic impact because they provide information about how a facility or service contributes to a county's standard of living.

Employment: The contribution of non-local visitor spending to employment is measured in full-time equivalent jobs. A full-time equivalent job is defined as a full-time employee, or combination of part-time employees who work the equivalent of a full-time position as defined by the employer. This is not a description of actual jobs, but rather a measure of full-time equivalent jobs generated from the flow of revenue created by non-local visitors.

Surveys were collected from 852 primary purpose, non-local visitors from July 2005 through June 2006. These surveys provided the following information:

- ✓ Average size of respondent groups
- ✓ Proportion of day and overnight stay visitors
- ✓ Per person, per day expenditures in the following nine categories:
 - Admission fees
 - Camping fees
 - Groceries
 - Dining out
 - Recreational equipment
 - Retail shopping
 - Lodging expenses (excluding in-park camping)
 - Auto expenses
 - Any other expenses

Dollars spent by visitors at parks in the form of admission and camping fees are generally forwarded directly to the North Carolina Division of Parks and Recreation headquarters and do not enter the local economy. Therefore, those fees were not included in the economic impact calculations. Expenditures categorized under “other” could not be analyzed using the economic impact software and so were also excluded from the study. Subsequently, the impacts of six expenditure categories are presented in this report.

The following procedures were used to calculate the economic contribution of visitors to each park. Hanging Rock State Park, located in Stokes County, is used as an example and the stages are listed in Table 2. An estimated 329,520 people visited Hanging Rock State Park in 2004.

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|--------|---|
| Step 1 | 169 individuals were surveyed at Hanging Rock State Park. Of those interviewed, 104 (61%) lived within Stokes County. Approximately 8% (14) were casual-use, non-local visitors. Thirty percent (51) of the visitors to Hanging Rock State Park were primary purpose, non-local visitors. These percentages were applied to the total visitation of 329,520 to obtain a total of 99,441 primary purpose visitors, 27,298 casual-use visitors, and 202,782 local visitors. |
| Step 2 | The average per person, per day expenditures reported by the primary purpose, non-local visitors was calculated. The total per person, per day |

expenditures was \$13.63.

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|--------------------|---|
| Step 3 | The per person, per day amounts were multiplied by 99,441 to estimate total direct expenditures for each of the six expenditure items for primary purpose, non-local visitors. |
| Step 4, 5
and 6 | Total direct expenditures for each of the six expenditure categories were entered into the IMPLAN software to calculate the impact in Stokes County of these direct expenditures on sales (4), income (5) and employment (6). |
| Step 7 | The economic impact of the park operating budget (FY 2004) was determined using IMPLAN and coded as Non-Education State Government Expenditures (IMPLAN Code 504). The impact on sales, personal income, and employment was calculated. |
| Step 8 | The total economic impact on sales was calculated by adding the economic impact on sales from primary purpose visitors with the economic impact on sales from the park operating budget to arrive at total economic impact. This was repeated to calculate total impact on jobs and personal income. Estimated sales tax generated was calculated by multiplying an assumed sales tax of two and a half percent by the impact on sales. This is based on the assumption that two and a half percent of total sales tax is returned to the county. |

Table 3 provides a summary of findings from all 14 parks. A discussion of the economic impacts of the parks is followed by a summary of each study park. Economic impact analysis tables for each park are located in Appendix C.

Table 2. Economic Impact Analysis – Primary Purpose, Non-Local Visitors

Hanging Rock State Park Stokes County			
		<u>Step 1</u>	
Average Party Size	3.04	Total Visits FY 2004	329,520
Average Visit to Park Area (days)	1.55	Estimated Non-Local Visitors	99,441
<u>Step 2</u>		<u>Step 3</u>	
Per person Per Day Expenditures Non-Local Visitors Within County		Annual Expenditures of Non-Local Visitors Within County	
Expenditure Type	Total	Expenditure Type	Total
Groceries	\$3.35	Groceries	\$333,405
Dining Out	\$1.67	Dining Out	\$166,081
Rec. Equipment & Supplies	\$0.85	Rec. Equipment & Supplies	\$84,904
Retail Shopping	\$1.00	Retail Shopping	\$99,400
Lodging	\$2.71	Lodging	\$269,209
Auto Expenses	\$4.05	Auto Expenses	\$402,571
Total:	\$13.63	Total:	\$1,355,572
<u>Step 4</u>		<u>Step 5</u>	
Economic Impact of Non-Local Visitors on Sales		Economic Impact of Non-Local Visitors on Resident Income	
Expenditure Type	Total	Expenditure Type	Total
Groceries	\$381,170	Groceries	\$146,349
Dining Out	\$197,107	Dining Out	\$58,582
Rec. Equipment & Supplies	\$96,135	Rec. Equipment & Supplies	\$49,582
Retail Shopping	\$111,911	Retail Shopping	\$52,517
Lodging	\$309,359	Lodging	\$117,689
Auto Expenses	\$463,097	Auto Expenses	\$204,726
Total:	\$1,558,779	Total:	\$629,445
<u>Step 6</u>		<u>Step 7</u>	
Economic Impact of Non-Local Visitors on Employment		Economic Impact of Park Operating Budget	
Expenditure Type	Total	Park Budget	\$616,920
Groceries	7	Impact on Sales	\$744,425
Dining Out	4.3	Impact on Personal Income	\$542,203
Rec. Equipment & Supplies	3	Impact on Employment*	16.1
Retail Shopping	3.1	*Number of jobs created	
Lodging	7.3		
Auto Expenses	5.9		
Total:	30.6		
<u>Step 8</u>			
Summary of Hanging Rock State Park Impact on Stokes County			
Primary Purpose, Non-Local Visitor Expenditures & Park Operating Budget			
Impact on Sales	Impact on Personal Income	Number of Jobs created	Sales Tax Generated
\$2,303,204	\$1,171,648	46.7	\$57,580

Table 3. Summary of Economic Impact of Fourteen State Parks (FY 2005-06)

Park	Financial Status			2004 Visitation	Number of Tourist	Annual Expenditures of Tourist	Economic Status				
	Park Revenue	Park Operating Budget	Net Operating Budget				Impact on Sales	Impact on Residents' Income	Number of Jobs Created	Cost per Job	Leverage of State Dollars
Eno River	\$8,573.00	\$505,469.48	\$496,896.48	298,989	51,998	\$797,152.60	\$1,737,180.00	\$907,352.00	29.6	\$16,787.04	1 to 1.8
Fort Fisher	\$82,779.00	\$398,908.15	\$316,129.15	740,377	333,170	\$14,503,877.66	\$20,067,545.00	\$7,936,204.00	390.8	\$808.93	1 to 25.1
Fort Macon	\$36,902.00	\$522,450.00	\$485,548.00	1,297,106	305,496	\$12,105,587.79	\$16,414,170.00	\$6,676,332.00	326.4	\$1,487.59	1 to 13.8
Gorges	\$1,442.00	\$253,509.17	\$252,067.17	134,072	60,624	\$2,533,239.48	\$3,718,748.00	\$1,458,457.00	71	\$3,550.24	1 to 5.8
Hammock's Beach	\$73,049.00	\$588,238.80	\$515,189.80	133,953	69,110	\$1,587,542.72	\$2,672,836.00	\$1,275,456.00	57.9	\$8,897.92	1 to 2.5
Hanging Rock	\$202,271.00	\$616,920.71	\$414,649.71	329,520	99,441	\$1,355,572.89	\$2,303,204.00	\$1,171,648.00	46.7	\$8,879.01	1 to 2.8
Jockey's Ridge	\$54,961.00	\$446,309.77	\$391,348.77	871,572	214,988	\$10,760,645.81	\$14,255,921.00	\$5,860,588.00	259	\$1,511.00	1 to 15
Jordan Lake	\$912,030.00	\$2,102,096.06	\$1,190,066.06	939,362	239,357	\$2,874,796.44	\$4,868,070.00	\$2,246,721.00	80.2	\$14,838.73	1 to 1.9
Kerr Lake*	\$447,314.00	\$1,815,555.50	\$1,368,241.50	1,506,020	951,171	\$12,824,320.85	\$17,569,214.00	\$7,863,741.00	374.6	\$3,652.54	1 to 5.8
Merchant's Millpond	\$23,389.00	\$392,750.57	\$369,361.57	197,830	147,634	\$1,399,088.68	\$1,729,870.00	\$806,072.00	47.7	\$7,743.43	1 to 2.2
Morrow Mountain	\$219,241.00	\$601,793.94	\$382,552.94	259,580	180,084	\$1,897,707.00	\$3,155,349.00	\$1,531,637.00	71.5	\$5,350.39	1 to 4.0
Mount Mitchell	\$285,433.00	\$746,950.62	\$461,517.62	434,374	226,236	\$8,875,126.15	\$11,221,959.00	\$4,702,632.00	236.8	\$1,948.98	1 to 10.2
Pilot Mountain	\$42,752.00	\$466,014.21	\$423,262.21	383,752	227,605	\$2,103,968.44	\$3,302,216.00	\$1,510,488.00	73.1	\$5,790.18	1 to 3.6
Stone Mountain	\$89,409.00	\$539,241.50	\$449,832.50	425,988	278,829	\$3,071,178.83	\$4,554,523.00	\$2,022,825.00	94.2	\$4,775.29	1 to 4.5

*Small sample size